Commercial Fishing License Activity and Landings of Rainbow Smelt (*Osmerus mordax*) in Statistical Districts 63-67 (Chaleur Bay, New Brunswick) during Fall 1996 and Winter 1997.

A. Locke, R. Bernier and F. Mowbray

Department of Fisheries and Oceans
Science Branch
Diadromous Fish Division
Maritime Region
P.O. Box 5030
Moncton, N.B.
E1C 9B6

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A. Locke, R. Bernier and F. Mowbray

Science Branch
Department of Fisheries and Oceans
P.O. Box 5030
Moncton, N.B.
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ABSTRACT

Fall 1996 and winter 1997 commercial fishery landings of rainbow smelt (*Osmerus mordax*) in Chaleur Bay and vicinity (statistical districts 63-67) were estimated from a telephone survey in which 73% of commercial license holders were contacted. Total catch, extrapolated to all license holders, was estimated as 206 t. Unlike the situation in 1995-96, when the catch estimated from the telephone survey was 30% higher than that summarized from purchase slips, the estimate obtained from the 1996-97 telephone survey was 24% less than landings collated from purchase slips (270 t). Both estimates of catch in 1996-97 exceeded estimates of the 1995-96 catch (104 t (purchase slips) and 140 t (telephone survey)). The winter boxnet fishery provided the majority of the catch in all statistical districts except 63 and 66. Approximately one fifth of the catch occurred in the fall fishery and was primarily taken with gillnets in statistical districts 65-67. Overall 61% of license holders were active, although most did not use all their licensed gear. Extrapolated survey results estimate that in fall, 60% of the licensed gillnets were used, 6% of boxnets and no bagnets. In winter, 1% of gillnets, 44% of boxnets and 40% of bagnets were in use. Trends in catches in 1996-97 relative to 1995-96 were variable, but catch per unit effort doubled in statistical district 65 in both fall and winter, for all gears fished. As in 1995-96, a decrease in the size of fish caught was noted throughout most of the survey area, and fishers also commented on increasing interference by seals.

RÉSUMÉ

On a évalué les débarquements de la pêche commerciale de l'éperlan arc-en-ciel (*Osmerus mordax*) issus de la baie des Chaleurs et des environs (districts statistiques 63-67) au cours de l'automne 1996 et de l'hiver 1997. Pour ce faire, on a communiqué par téléphone avec 73 % des détenteurs de permis de pêche commerciale. Les prises totales extrapolées à tous les détenteurs de permis ont été évaluées à 206 tonnes. Contrairement à 1995-1996, où les prises évaluées à partir du sondage téléphonique étaient de 30 % supérieures au total obtenu sur les bordereaux d'achat, l'évaluation découlant du sondage téléphonique de 1996-1997 était de 24 % inférieure aux débarquements calculés à partir des bordereaux d'achat (270 tonnes). Les deux estimations des prises de 1996-1997 dépassaient les estimations des prises de 1995-1996, pour se chiffrer à 104 tonnes (avec les bordereaux d'achat) et à 140 tonnes (au moyen du sondage téléphonique). C'est la pêche hivernale au parc fermé qui a fourni la majorité des prises dans tous les districts statistiques à l'exception des districts 63 et 66. Environ le cinquième des prises résultent de la pêche automnale et elles ont été capturées surtout dans des filets maillants dans les districts 65-67. Dans l'ensemble, 61 % des détenteurs de permis ont fait la pêche, bien que la plupart n'ont pas utilisé tous les engins pour lesquels ils détenaient un permis. D'après les résultats extrapolés par suite des sondages, il semble qu'en automne 60 % des filets maillants visés par des permis ont été utilisés, 6 % des parcs fermés

ont servi et aucun filet à poche n'a été employé. Au cours de l'hiver, 1 % des filets maillants ont été utilisés, 44 % des parcs fermés et 40 % des filets à poche. Par rapport à 1995-1996, les tendances des prises de 1996-1997 étaient variables, mais les prises par unité d'effort ont doublé dans le district statistique 65, tant en automne que pendant l'hiver pour tous les engins utilisés. Comme en 1995-1996, on a noté une réduction de la taille des poissons pêchés un peu partout dans la zone recensée, et les pêcheurs ont aussi mentionné l'interférence croissante des phoques.

INTRODUCTION

Rainbow smelt (*Osmerus mordax*) is fished commercially and recreationally throughout the southern Gulf of St. Lawrence (Fig. 1). Commercial smelt fisheries are restricted by license, which specifies the amount and types of fishing gear allowed and the area in which the license holder may fish. Recreational fisheries are not licensed. Both commercial and recreational fisheries are regulated by season (Table 1). In recent years, the smelt fishery has been managed by limiting effort, i.e., by restricting the length of the commercial fishing season as well as the number of licenses.

Information on stock status or landings of smelt in the southern Gulf of St. Lawrence is quite limited. Methods currently in use by the Statistics Branch of the Department of Fisheries and Oceans (DFO) for monitoring landings (purchase slip information supplemented with observations by fishery officers, as reported by Chaput and LeBlanc (1996)) may underestimate the actual amount landed since reports of commercial activity are frequently incomplete and recreational catches are not included. Total commercial catch estimated from a telephone survey in 1995-96 (Mowbray and Locke 1998) was 35% higher than landings collated from purchase slips.

In this report, we present the results of a telephone survey of 1996-97 commercial smelt landings and fishing effort in Chaleur Bay, New Brunswick and adjacent waters (statistical districts 63-67) (Fig. 1). The fishery in this region is of interest for two reasons: (1) it is an important region in terms of total smelt landings; and (2) there exists a co-management agreement between Quebec (Ministère de l'Environnement et de la Faune) and New Brunswick (DFO) requiring DFO to collect landing statistics and collaborate in developing a co-operative management plan. Results of this telephone survey provide estimates of current commercial harvest levels, license activity and trends in smelt abundance, as perceived by the fishers. We are also interested in determining whether there is a consistent relationship between the telephone survey results and catches summarized from purchase slips.

METHODS

Commercial smelt fishing license holders residing in statistical districts 63-67 were contacted by telephone during the fall of 1997 and asked the questions listed in Appendices 1 and 2. These included questions about their landings for the fall (Sept.- Dec.) 1996 and winter (Jan. - Apr.) 1997 fisheries, number and type of gear used, fishing location and perceived trends in catch and abundance relative to previous years. Since the fall and winter seasons were licensed independently under 1996 and 1997 licenses, respectively, results were summarized separately for each season.

Results were compiled for each statistical district and with statistical districts 63-65 grouped together under Chaleur Bay. This grouping represents the New Brunswick portion of the Chaleur smelt stock management zone as defined by the Quebec-DFO co-management committee.

The numbers of licensed fishers and gear were obtained from DFO's Licensing Branch, Moncton. The gear type determines the manner in which the amount of gear permitted is recorded on licenses. Boxnets and bagnets are described by number of nets, e.g., a license may be for 2 bagnets and 1 boxnet. Gillnets however are described by the number of fathoms of net allowed (e.g., 150 fathoms of gillnet). Since most gillnet fishers responding to our survey gave their effort as the number of nets fished, we were obliged to convert fathoms of gillnet to numbers of nets in order to determine the proportion of active gear. The conversion factor used, 15 fathoms per net, was formerly used by DFO to standardize licenses at a time when some licenses were in number of nets and others in fathoms, and is typical of the length of gillnets used for smelt in the area (G. Chiasson, DFO, Tracadie, N.B.).

We were not able to contact all license holders by telephone or mail, and consequently the total numbers of active fishers, active gear, and catch for each statistical district have been extrapolated from the reported numbers. The total number of active fishers was extrapolated by dividing the number of active respondents by the proportion of license holders contacted in each statistical district. The extrapolated total number of active fishers per gear type was calculated by dividing the reported number of active licensed fishers (fishing a type of gear) by the proportion of fisherman contacted that were licensed for the specific type of gear. The extrapolated total number of active gears was obtained by multiplying the reported mean number of nets used per fisher by the extrapolated number of active fishers using that gear type. Total catch of each gear type in each statistical district was extrapolated by multiplying the reported mean catch per net by the extrapolated number of active nets. In all cases only the final figures were rounded.

RESULTS AND DISCUSSION

The number of licensed smelt fishers in statistical districts 63-67 has decreased over the past decade. Licensed smelt fishers numbered 210 in fall 1996 and 203 in winter 1997 (Table 2) with a total of 215 licenses held in one or both of the license periods. The total number of licenses declined from 219 held in 1995-96 (Mowbray and Locke 1998) and 241 held in 1988 (Cairns 1989).

In total, 61% of the 158 smelt fishers contacted were actively fishing (Table 2), compared to 63% in 1995-96 (Mowbray and Locke 1998). The

proportion of contacted smelt fishers who were active in 1996-97 ranged from 57% in statistical district 66 to 70% in statistical district 64.

In Chaleur Bay (statistical districts 63-65) the majority of active respondents (88%) participated in the winter fishery, whereas in statistical districts 66 and 67 most fishers (71%) were active in the fall. Only 18% of the active fishers surveyed (statistical districts 63-67) fished both seasons. Overall, 49% of the fishers contacted, and 80% of the active fishers, had set nets in at least 8 of the last 10 years and were considered regular fishers. Extrapolation from the contacted fishers to the total licensees suggests that 73 fishers were active in fall and 79 in winter.

Gillnets were the most commonly licensed gear (1501 nets licensed in fall and 1546 in winter in statistical districts 63-67) (Tables 3a,b). The mean number of gillnets licensed per fisher ranged from 4 to 16 across the five statistical districts in 1996, and 4 to 17 in 1997. The mean number of gear used per active fisher in the fall fishery was higher (range 2 - 20) but this probably indicates that the active fishers are those with the most licensed gear. The projected proportion of active licensed gillnets in fall was 60% overall, but ranged from 5 - 71% by statistical district. Very few gillnets were fished in winter.

Boxnets were the second most abundant licensed gear (Tables 3a,b). In total, 629 boxnets were licensed in fall and 647 in winter. The majority of these licenses were held by fishers in statistical districts 65 and 66. Most boxnet fishing occurred in winter. The projected proportion of active boxnet licensees increased from 16% (range 11%-26%) in fall to 55% (range 45%-100%) in winter.

Bagnets were fished only in the inner Bay (statistical district 63), although a few were licensed (but not used) in statistical districts 65 and 67. This gear was fished only in winter. Only six of the total of 15 licensed bagnets were used (Table 3b).

Compared to the 1988 survey, there was a shift in gear use away from bagnets and toward gillnets in 1995-96 and 1996-97 (Table 4). Based on the numbers of licensees using the gear, rather than the numbers of licensed gear, boxnets are the most popular gear, followed by gillnets. Only one individual reported using bagnets.

Compared to the two previous surveys, there was no change in seasonal use of gillnets or bagnets, but there was a shift in seasonal patterns of boxnet use (Table 5). Overall, 21% of active boxnet fishermen surveyed in 1996-97 set their nets in the fall, as compared with 6-8% in 1988 and 1995-96. This coincided with a reduction in winter use of boxnets in 1996-97 relative to previous surveys.

Bagnets were by far the most effective gear with average winter catches of 3,662 kg/net (Table 6). Catch per unit effort (CPUE) of boxnets was the next

highest, averaging 172 kg/net in fall and 458 kg/net in winter. Boxnet CPUE was consistently higher in the winter than in fall in all five statistical districts. Winter boxnet catches were higher in statistical districts 63-65 than in 66-67. Gillnet CPUE was an order of magnitude lower than that of boxnets, averaging 40 kg/net in fall and 13 kg/net in winter. Fall CPUE of both gillnets and boxnets was highest in statistical district 65.

CPUE in 1996-97 was at least twice that reported in 1995-96 in statistical district 65 (all gear types, both seasons) but values were similar to or lower than 1995-96's in most other statistical districts (Table 7).

Total catch, extrapolated to all license holders in statistical districts 63-67, was estimated as 206 t, 24% less than landings collated from purchase slips (270 t) (Table 8). Estimates of total catch in statistical districts 63-65 differed by only 4%: 161 t according to the telephone survey, but 167 t according to Statistics Branch. Unlike the estimates obtained from these two sources in 1995-96, when the telephone survey estimates were 35% higher than those obtained from Statistics Branch, the Statistics Branch estimates summarized for statistical districts 63-65 and 63-67 were consistently higher in 1996-97. We cannot explain why the two estimates of catch are so inconsistently related to one another in the two comparisons of telephone survey data vs. Statistics Branch data. Based on the 1995-96 results, we assumed that the telephone survey data were more complete than the purchase slip compilations. This seemed reasonable, since the license holders themselves state that not all commercial transactions are covered by the purchase slip records (e.g., sales to individuals for consumption at home) and some license holders keep a portion of their catch for their own use. However, the relatively low estimates of catch obtained from the telephone survey in 1996-97 contradict our expectations, and we have no satisfactory explanation.

Extrapolated catches were highest in statistical district 65 (Table 8). Extrapolated catches in statistical districts 63 and 66 each were about one-third the catch of statistical district 65. Catches in statistical districts 64 and 67 were each about one-third the catch of statistical districts 63 or 66. However, as in the 1995-96 report (Mowbray and Locke 1998), the distribution of landings among statistical districts is affected by the way statistical district was assigned. Smelt landings tabulated by Statistics Branch are recorded by the statistical district in which smelt are landed, which in most cases is the same statistical district in which they are fished. However, for the telephone survey, statistical district was recorded as the statistical district associated with the fisher. This is assigned by DFO Licensing Branch as the statistical district of the fisher's major license (location for crab or lobster fishing). In most cases smelt fishing occurs within this same area, but this is not always the case. Smelt fishing locations are specific to each gear license and are usually restricted to a given bay or river. A fisher's gillnet licenses may be for the same statistical district as his major license, but his boxnet licenses for another. An overview of survey responses to

questions about fishing location revealed that if this error occurs it typically results in catch and effort being assigned to an adjacent statistical district. Hence, east-west trends in the proportion of active fishers, gear type, catch or effort should not be overly affected by this reporting bias.

The 1996-97 estimated smelt catch of 206 t (telephone survey) to 270 t (Statistics Branch) was much higher than that estimated for the 1995-96 season: 104 t (Statistics Branch) to 140 t (telephone survey) (Mowbray and Locke 1998).

Despite overall better landings, only about half the fishers considered catches in 1996-97 to have been good or fair (Table 9). Within Chaleur Bay (statistical districts 63-65), perceptions of the fishery were somewhat better than those in the whole study area; 65% of fishers considered the catches to have been good or fair. Perceptions of smelt abundance generally followed the same trend as perceptions of catch, although this was not the case in statistical district 63, where catch was generally considered to be good despite a widespread belief that abundance was poor compared to recent years. As in 1995-96 (Mowbray and Locke 1998), comments for statistical districts 65-67 centered on interference from seals (all gears). Throughout the study area, an unusually large proportion of small smelt was reported in the catches.

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Table 1. Legal gear types and seasons for commercial and recreational smelt fisheries in statistical districts 63-67.

Fishery	Gear	Location	Season	Limitations
Commercial	Bagnets	Tidal waters	14 October - 3 March	Mesh size ≥ 31 mm, leader ≤ 31 m.
	Boxnets	Tidal waters	14 October - 3 March	
	Gillnets	Tidal waters	1 October - 3 March	
Recreational	Spears	Tidal waters	1 December - 15 February	None
	Dipnets	Tidal and inland waters	1 April - 31 May	Retention limit of 60 fish/day.

Table 2. Number of licensed and active commercial smelt fishers in statistical districts 63-67 in fall 1996 and winter 1997. To determine the number of fishers active only in fall 1996 (or winter 1997), subtract the number of fishers active in both seasons.

	No. license holders		No. contacted	No. of active fishers					Extrapolated no. of active fishers	
Statistical District	Fall 1996	Winter 1997		Total	Fall 1996	Winter 1997	Both seasons	In 8 of last 10 yrs.	Fall 1996	Winter 1997
63	20	18	15	9	3	8	2	7	4	10
64	13	10	10	7	2	6	1	5	3	6
65	58	61	36	24	10	21	7	24	16	36
66	75	75	61	35	28	11	4	25	35	14
67	44	39	36	21	12	12	3	16	15	13
Chaleur (63-65)	91	88	61	40	15	35	10	36	23	52
Total (63-67)	210	203	158	96	55	58	17	77	73	79

Table 3a. Number of licensed and active commercial smelt fishing gear and fishers in districts 63-67 during fall 1996.

		Statistical District						
Gear	Category	63	64	65	66	67	63-65	63-67
Gillnets	# licensed gear	7	42	221	905	326	270	1,501
	# fishers licensed for gear	2	7	25	59	20	34	113
	# licensed gear / fisher	4	6	9	15	16	8	13
	reported # active fishers	1	1	6	26	6	8	40
	reported # active gear	4	2	65	520	98	71	689
	mean # gear used / fisher	4	2	11	20	16	9	17
	extrapol. # (%) active fishers	1 (50)	1 (19)	10 (39)	32 (54)	7 (37)	12 (35)	53 (47)
	extrapol. # (%) active gear	4 (57)	2 (5)	110 (50)	640 (71)	112 (34)	108 (40)	901 (60)
Bagnets	# licensed gear	11	0	2	0	2	13	15
	# fishers licensed for gear	4	0	1	0	1	5	6
	mean # licensed gear / fisher	3	0	2	0	2	3	3
	reported # active fishers	0	0	0	0	0	0	0
	reported # active gear	0	0	0	0	0	0	0
	mean # gear used / fisher	--	--	--	--	--	--	--
	extrapol. # (%) active fishers	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	extrapol. # (%) active gear	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Boxnets	# licensed gear	82	42	205	197	113	329	629
	# fishers licensed for gear	17	7	49	27	28	73	128
	mean # licensed gear / fisher	5	6	4	7	4	5	5
	reported # active fishers	2	1	4	2	6	7	15
	reported # active gear	4	2	9	3	10	15	28
	mean # gear used / fisher	2	2	2	2	2	2	2
	extrapol. # (%) active fishers	3 (18)	1 (19)	6 (13)	3 (11)	7 (26)	10 (14)	20 (16)
	extrapol. # (%) active gear	6 (7)	2 (5)	12 (6)	6 (3)	14 (12)	20 (6)	40 (6)

Table 3b. Number of licensed and active commercial smelt fishing gear in statistical districts 63-67 during winter 1997.

		Statistical District						
Gear	Category	63	64	65	66	67	63-65	63-67
Gillnets	# licensed gear	7	50	211	960	318	268	1,546
	# fishers licensed for gear	2	6	24	59	19	32	110
	# licensed gear / fisher	4	8	9	16	17	8	14
	reported # active fishers	0	0	0	0	1	0	1
	reported # active gear	0	0	0	0	7	0	7
	mean # gear used / fisher	--	--	--	--	7	--	7
	extrapol. # (%) active fishers	0 (0)	0 (0)	0 (0)	0 (0)	1 (5)	0 (0)	1 (1)
	extrapol. # (%) active gear	0 (0)	0 (0)	0 (0)	0 (0)	7 (2)	0 (0)	7 (1)
Bagnets	# licensed gear	11	0	2	0	2	13	15
	# fishers licensed for gear	4	0	1	0	1	5	6
	mean # licensed gear / fisher	3	0	2	0	2	3	3
	reported # active fishers	1	0	0	0	0	1	1
	reported # active gear	6	0	0	0	0	6	6
	mean # gear used / fisher	6	--	--	--	--	6	6
	extrapol. # (%) active fishers	1 (30)	0 (0)	0 (0)	0 (0)	0 (0)	1 (29)	1 (21)
	extrapol. # (%) active gear	6 (55)	0 (0)	0 (0)	0 (0)	0 (0)	6 (46)	6 (40)
Boxnets	# licensed gear	67	33	210	229	108	310	647
	# fishers licensed for gear	16	6	52	30	24	74	128
	mean # licensed gear / fisher	4	6	4	8	5	4	5
	reported # active fishers	7	6	21	11	11	34	56
	reported # active gear	30	20	85	44	40	135	219
	mean # gear used / fisher	4	3	4	4	4	4	4
	extrapol. # (%) active fishers	8 (53)	6 (100)	35 (68)	14 (45)	12 (50)	49 (67)	71 (55)
	extrapol. # (%) active gear	32 (48)	18 (55)	140 (67)	56 (24)	48 (44)	196 (63)	284 (44)

Table 4. Comparison of commercial smelt fishing gear use by fishers in statistical districts 63-67 in 1988, 1995-96 and 1996-97. Some respondents fish more than one type of gear.

	Year of survey	Statistical district						
		63	64	65	66	67	63-65	63-67
No. of fishers licensed	1996-97	20	13	61	76	45	94	215
	1995-96	22	13	66	75	43	101	219
	1988	32	14	75	69	51	121	241
No. of fishers surveyed	1996-97	15	10	39	65	42	65	172
	1995-96	13	4	58	68	38	75	181
	1988	16	14	25	13	21	55	89
No of active respondents	1996-97	9	7	24	35	21	40	96
	1995-96	7	3	40	42	22	50	114
	1988	15	14	24	15	20	53	88
% of active fishers using gillnets	1996-97	11	14	25	74	33	20	43
	1995-96	0	25	30	72	55	27	49
	1988	0	43	25	60	35	23	33
% of active fishers using bagnets	1996-97	11	0	0	0	0	3	1
	1995-96	14	0	0	0	0	2	1
	1988	27	7	0	7	0	10	10
% of active fishers using boxnets	1996-97	100	100	100	37	81	100	74
	1995-96	86	100	80	28	55	84	57
	1988	66	64	83	66	60	74	69

Table 5. Comparison of seasonal gear use by commercial smelt fishers in statistical districts 63-67 in 1988, 1995-96 and 1996-97. N is the number of active surveyed fishers in each district using a particular gear type followed by the percentage of those active fishers using gear in winter or fall. Percentages summed for winter and fall occasionally exceed 100 since some fishers fish a given gear in both seasons.

		Statistical District																			
		63			64			65			66			67			63-65			63-67		
Gear	Year of survey	N	Winter (%)	Fall (%)	N	Winter (%)	Fall (%)	N	Winter (%)	Fall (%)	N	Winter (%)	Fall (%)	N	Winter (%)	Fall (%)	N	Winter (%)	Fall (%)	N	Winter (%)	Fall (%)
Gillnets	1996-97	1	0	100	1	0	100	6	0	100	26	0	100	7	14	86	8	0	100	41	2	98
	1995-96	0	0	0	1	0	100	12	0	100	31	0	100	12	0	100	13	0	100	56	0	100
	1988	0	0	0	6	0	100	3	17	83	9	0	100	8	25	88	12	8	92	29	10	93
Bagnets	1996-97	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	1	100	0	1	100	0
	1995-96	1	100	0	0	0	0	0	0	0	0	0	0	0	0	0	1	100	0	1	100	0
	1988	4	100	0	1	100	0	0	0	0	1	100	0	0	0	0	5	100	0	6	100	0
Boxnets	1996-97	9	78	22	7	86	15	25	84	16	13	85	15	17	65	35	41	83	17	71	79	21
	1995-96	6	100	0	3	100	0	32	97	3	12	100	0	12	75	25	41	98	2	65	94	6
	1988	10	100	0	9	89	22	20	95	5	10	100	10	12	92	8	39	95	8	61	95	8

Table 6. Total reported catch and catch per net, by gear type, of surveyed commercial smelt fishers in statistical districts 63-67, in fall 1996 and winter 1997.

			Statistical District						
Gear Type	Season	Category	63	64	65	66	67	63-65	63-67
Gillnets	Fall '96	Total catch (kg)	67.5	45	7,087.5	17,955	2,610	7,200	27,765
		# nets fished	4	2	65	520	98	71	689
		Mean catch (kg/net)	17	23	109	35	27	101	40
	Winter '97	Total catch (kg)	0	0	0	0	90	0	90
		# nets fished	0	0	0	0	7	0	7
		Mean catch (kg/net)	--	--	--	--	13	--	13
Bagnets	Winter '97	Total catch (kg)	21,971.25	0	0	0	0	21,971.25	21,971.25
		# nets fished	6	0	0	0	0	6	6
		Mean catch (kg/net)	3,662	--	--	--	--	3,662	3662
Boxnets	Fall '96	Total catch (kg)	405	180	2,520	450	1,262.25	3,105	4,817.25
		# nets fished	4	2	9	3	10	15	28
		Mean catch (kg/net)	101	90	280	150	126	207	172
	Winter '97	Total catch (kg)	14,152.5	15,300	57,172.5	7,785	5,962.5	88,625	10,0372.5
		# nets fished	30	20	85	44	40	135	219
		Mean catch (kg/net)	472	765	673	177	149	656	458

Table 7. Comparison of catch per net, by gear type and statistical district, in 1995-96 and 1996-97 smelt fisheries of statistical districts 63-67.

		Statistical district						
		63	64	65	66	67	63-65	63-67
Season/Gear	Year	Catch per unit effort (kg/net)						
Fall								
Gillnet	1996	17		109	35	27	101	40
	1995	--	30	39	29	16	39	28
Boxnet	1996	101	90	280	150	126	207	172
	1995	--	--	114	--	313	114	280
Winter								
Gillnet	1997	--	--	--	--	13	--	13
	1996	--		--	--	--	--	--
Bagnet	1997	3,662	23	--	--	--	3,662	3,662
	1996	3,723	--	--	--	--	3,723	3,723
Boxnet	1997	472	765	673	177	149	656	458
	1996	325	40	321	133	231	310	245

Table 8. Reported and extrapolated commercial smelt fishery landings and effort for fall 1996 and winter 1997 in statistical districts 63-67. Statistics Branch total catch includes reported catch from a fall 1996 spear fishery (district 65, 100 kg; district 66, 600 kg) which was not reported to us in the telephone survey. Boxnet and trapnet catches from Statistics Branch are summarized under boxnet catches. Statistics Branch landings are rounded to the nearest 100 kg and amounts less than 100 kg are not reported.

		Statistical District						
Gear Type	Category	63	64	65	66	67	63-65	63-67
FALL 1996:								
Gillnets	Reported mean catch/net (kg)	17	23	109	35	27	104	43
	Extrapolated no. of active nets	4	2	110	640	112	116	
	Extrapolated catch (kg)	68	46	11,990	22,400	3,024	12,104	
	Statistics Branch catch (kg)	0	0	15,900	11,300	9,900	15,900	
Bagnets	Reported mean catch/net (kg)	--	--	--	--	--	--	--
	Extrapolated no. of active nets	0	0	0	0	0	0	0
	Extrapolated catch (kg)	0	0	0	0	0	0	0
	Statistics Branch catch (kg)	0	0	0	0	0	0	0
Boxnets	Reported mean catch/net (kg)	101	90	280	150	126	219	175
	Extrapolated no. of active nets	4	2	12	4	14	18	36
	Extrapolated catch (kg)	404	180	3,360	600	1,764	3,944	6,308
	Statistics Branch catch (kg)	0	0	700	900	3,300	700	4,900
All gears	Extrapolated total catch (kg)	472	226	15,350	23,000	4,788	16,048	43,836
All gears	Statistics Branch total catch (kg)	0	0	16,700	34,900	13,200	16,700	64,800

Table 8. Continued.

Gear Type	Category	Statistical District						
		63	64	65	66	67	63-65	63-67
WINTER 1997:								
Gillnets	Reported mean catch/net (kg)	--	--	--	--	13	--	13
	Extrapolated no. of active nets	0	0	0	0	7	0	7
	Extrapolated catch (kg)	0	0	0	0	91	0	91
	Statistics Branch catch (kg)	0	0	0	0	0	0	0
Bagnets	Reported mean catch/net (kg)	3,662	--	--	--	--	3,662	3,662
	Extrapolated no. of active nets	6	0	0	0	0	6	6
	Extrapolated catch (kg)	21,972	0	0	0	0	21,972	21,972
	Statistics Branch catch (kg)	21,200	0	0	0	0	21,200	21,200
Boxnets	Reported mean catch/net (kg)	472	765	673	177	149	648	477
	Extrapolated no. of active nets	32	18	140	56	48	190	294
	Extrapolated catch (kg)	15,104	13,770	94,220	9,912	7,152	123,094	140,158
	Statistics Branch catch (kg)	50,200	31,700	65,400	41,100	13,700	147,300	202,100
All gears	Extrapolated total catch (kg)	37,076	13,770	94,220	9,912	7,243	145,066	162,221
All gears	Statistics Branch total landings (kg)	71,400	13,770	65,400	41,100	13,700	150,570	205,370
TOTAL:								
All gears	Extrapolated total catch (kg)	37,548	13,996	109,570	32,912	12,031	161,114	206,057
All gears	Statistics Branch total landings (kg)	71,400	13,770	82,100	76,000	26,900	167,270	270,170

Table 9. Trends in smelt catch and abundance as perceived by commercial fishers in statistical districts 63-67, during the fall 1996-winter 1997 season.

	Catch relative to recent years (% responses)			Abundance relative to recent years (% responses)			
Statistical District	Good	Fair	Poor	Good	Fair	Poor	Comments
63	64	9	27	36	18	45	poor ice conditions and smaller fish
64	30	10	60	30	10	60	smaller fish
65	44	28	28	44	28	28	seals more abundant ; destroy catch and nets, fish small
66	11	34	55	10	37	53	seals are a problem, small mesh size in box nets are keeping too many small fish
67	14	29	57	18	21	61	seals eating catch, destroying nets and smaller fish
63-65	46	19	35	39	22	39	
63-67	26	27	47	24	27	49	

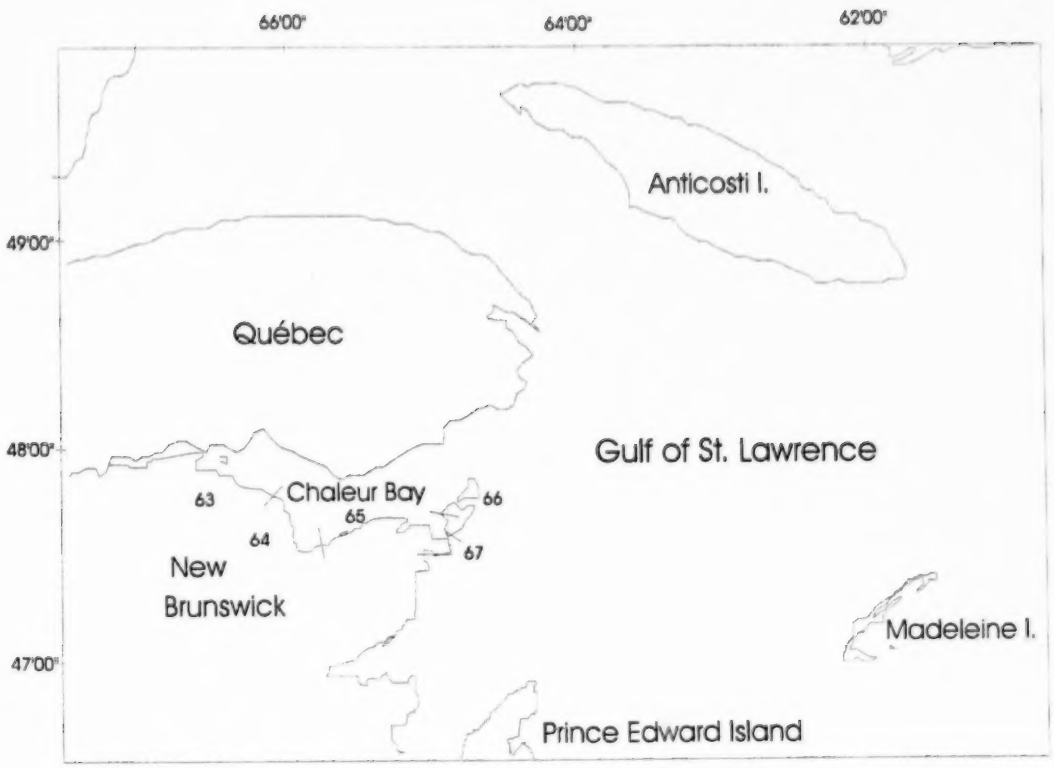

Figure 1. Map of the southern Gulf of St. Lawrence, showing statistical districts 63-67 where the smelt survey was conducted.

Appendix 1. Survey questions asked during the 1996-97 telephone survey of anglophone smelt fishers in statistical districts 63-67.

1. Did you fish in 1995-1996?

2. If the answer to question 1 is "no" then participants were asked:
   a) What type of gear do you usually fish? Boxnets? Bagnets? or Gillnets?
   b) What season do you usually fish? Fall? Winter? or Both?
   c) How many nets do you usually set?

3. For each season fished (Fall 1995 or Winter 1996) the participant was asked:
   a) What was your total catch (lbs.)?
   b) What gear type did you use?
   c) How many nets were used of each gear type?

5. Would you describe your catch as Good, Fair or Poor compared to recent years?

6. Would you describe smelt abundance in your fishing area as Good, Fair or Poor compared to recent years?

7. How many of the last ten years did you fish smelt?

8. Are you planning to fish smelt in 1996-1997?

9. Where do you set your nets?

10. Comments?

Appendix 2. Survey questions asked during the 1996-97 telephone survey of francophone smelt fishers in statistical districts 63-67.

1. Avez-vous pêché l'éperlan en 1995-1996?

2. Si le participant répondait non à la question 1, on lui posait les questions suivantes :
a) Quel genre d'engin exploitez-vous habituellement? Le parc fermé (boxnets)? Le filet à poche (bagnets)? Le filet maillant (gillnets)?
b) Pendant quelle saison pêchez-vous habituellement? L'automne? L'hiver? Les deux?
c) Combien de filets mettez-vous habituellement à l'eau?

3. Pour chaque saison exploitée (automne 1995 ou hiver 1996), on posait au participant les questions suivantes :
a) Quel a été le total de vos prises (lb)?
b) Quel genre d'engins avez-vous utilisé?
c) Combien d'engins avez-vous utilisés pour chaque genre?

5. En comparaison avec les dernières années, diriez-vous que vos prises étaient bonnes, passables, médiocres?

6. En comparaison avec les dernières années, diriez-vous que l'abondance des éperlans dans votre zone de pêche est bonne, passable, médiocre?

7. Pendant combien d'années parmi les dix dernières années avez-vous pêché l'éperlan?

8. Avez-vous l'intention de pêcher l'éperlan en 1996-1997?

9. Où mouillez-vous vos filets?

10. Commentaires?